| 1   |  |                   |   | ATTY DOCKET NO.<br>UAB-17404/22 |                                    |                            | S        | SERIAL NO.<br>10/790,914 |          |                                      |                    |  |
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| INITIAL   |  | <b> </b>          | 4,554,101   | 11/1985                         | Hopp et al.                        |                            | 260      | 260                      |          | 2.5                                  | . , , , , , , ,    |  |
| .VI   | VF   |                   | 4,603,102   | 7/1986                          | Himmelmann et al.                  |                            | 430      |                          | 52       | 3                                    | <del> </del>       |  |
| -,  |  | -                 | 4,740,593   | 04/1988                         | Gonzalez et al.                    |                            | 435      |                          | 24       | 3                                    |                    |  |
|   |  |                   | 4,980,163   | 12/1990                         | Blackburn et al.                   |                            | 434      |                          | 94.      | .63                                  |                    |  |
|   |  |                   | 5,043,176   | 08/1991                         | Bycroft et al.                     |                            | 426      |                          | 33:      | 5                                    |                    |  |
|   |  |                   | 5,135,910   | 08/1992                         | Blackburn etc al.                  |                            | 514      |                          | 2        |                                      |                    |  |
|   | _  |                   | 5,932,469   | 08/1999                         | Hillman                            |                            | 435      |                          | 252.3    |                                      |                    |  |
|   |  | ļ                 | 6,218,362   | 04/2001                         | Lavoic                             | Lavoic et al.              |          |                          |          |                                      |                    |  |
| \   | /  | 6,391,285 05/2002 |   | 05/2002                         | Hillman                            |                            | 424      |                          | 50       |                                      |                    |  |
|   |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
|   |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
|   |  |                   |   | FORE                            | IGN PATE                           | NT DOCUMENTS               |          |                          |          |                                      |                    |  |
| VF  |  |                   | DOCUMENT NUMBER   | DATE                            | COUNTRY                            |                            | CLASS    |                          | SUBCLASS |                                      | TRANSLATION YES NO |  |
|   | <u>.</u>   |                   | WO 92/18143   | 10/1992                         | WIPO                               |                            |          |                          |          |                                      |                    |  |
|   |  |                   | WO 93/1987  | 09/1993                         | WIPO                               |                            |          |                          |          |                                      |                    |  |
| ***   |  |                   | WO 98/56411   | 12/1998                         | WIPO                               |                            |          |                          |          |                                      |                    |  |
|   |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
|   |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
|   | 1  | _                 | OTHER DOCUME  | •                               | -                                  | , Title, Date, Pertinent   |          | s, Etc.)                 |          |                                      |                    |  |
| VF Chen et al., Applied and Environmental Microbiology, Mar. 1999, p. 1336-1360 |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
| 1   |  |                   | Hamada et al., Archs Oral Biol, vol. 20, p. 641-648             |                                 |                                    |                            |          |                          |          |                                      |                    |  |
| 1   | Augustin et al. (1992) "Genetic analysis of epidermin biosynthetic genes and epidermin-negative mutants of Staphylococcus epidermis", Eur. J. Biochem, 204:1149-1154  Bedwell et al. (1989) "Sequrence and Structural Requirements of a Mitochondrial Protein Import Signal Defined by Saturation Cassette Matugenesis", Mol. Cell. Biol., 9:1014-1025 |                   |   |                                 |                                    |                            |          |                          | by       |                                      |                    |  |
| EXAMINER  |  |                   | Saturation Cassette Matugenesis", Moi. Cell. Bio /Vanessa Ford/ |                                 |                                    | DATE CONSIDERED 08/01/2006 |          |                          |          |                                      |                    |  |
|   |  |                   |   |                                 |                                    |                            |          |                          |          |                                      |                    |  |
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Form PTO-A820 (also form PTO-1449)

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| • EXAMINER      | OTHER DOCUMENTS (Including Author, Title   | le, Date, Pertinent Pages, Etc.)   |   |  |  |  |  |  |
| INITIAL         | Buchman et al. (1988) "Structure, Expression, and Evolution of a Gene Encoding the Precursor of Nisin, A Small Protein Antibiotic", J. Biol. Chem., 263:16260-16266.   |  |   |  |  |  |  |  |
| VF              | Antibiotic", J. Biol. Chem., 263:16260-16266.  | am accu 36 1 A JADa 16   | 0.7127                                    |  |  |  |  |  |
|                 | Burdett (1990) "Nucleotide sequence of the tet(M) gene of Tn916", Mucl. Acid Res., 18:6137   |  |   |  |  |  |  |  |
|                 | Caufield et al. (1990) "Evidence that Mutacin II p<br>Plasmid, 24:110-118  | •  |   |  |  |  |  |  |
|                 | Caufield et al. (1990) "Use of transposon Tn916 to<br>mutans", Infection and Immunity, 58(12):4126-41.   | ed gene from Streptococcus   |   |  |  |  |  |  |
|                 | Caufield et al. (1985) "Distinct bacteriocin groups<br>Infection and Immunity, 48(1): 51-56  | correlate with different groups of St                                    | reptococcus mutans plasmids",             |  |  |  |  |  |
|                 | Chikindas, M.L. et al. (1994) "Mutacin II, a bactericidal lantibiotic from streptoccus mutans", Antimicrobial Agents and Chemotherapy, 39(12):2645-2660  |  |   |  |  |  |  |  |
|                 | Chou and Fasman (1975a) "Prediction of Protein   | Conformation", Biochemistry, 13(2):222-245                               |   |  |  |  |  |  |
|                 | Chou and Fasman (1974b) "Conformational Prameters of Amino Acids in Helical, B-Sheet, ar Calculated from Proteins", Biochemistry, 13(2):211-222  |  |   |  |  |  |  |  |
|                 | Chou and Fasman (1978a) "Prediction of the Seco<br>Enzymol. Relat. Areas Mol. Biol. 47:45-148  | ary Structure of Proteins from Their Amino Acid Sequence," Adv.          |   |  |  |  |  |  |
|                 | Chou and Fasman (1978b) "Empirical Predictions   | of Protein Conformation", Ann. Rev                                       | v. Biochem., 47:251-276.                  |  |  |  |  |  |
|                 | Chung and Hansen (1992) "Determination of the Sequence of spaE and Identification of a Promote Operon in Bacillus Subtilit", J. Bacteriol. 174:6699-6702   |  |   |  |  |  |  |  |
|                 | Dodd et al. (1990) "Analysis of the genetic determinant for production of the peptide antibiotic nisin", J. Gen. Microbiol.,   |  |   |  |  |  |  |  |
|                 | Gawron-Burke and Clewell (1984) "Regeneration of Insertionally INactivated Streptococcal DNA Fragments after Excision of Transposon Tn916 in Escherichia coli: Strategy for Targeting and Cloning of Genes from Gram-Positive Bacteria", J. Bacteriol., 159:214-221. |  |   |  |  |  |  |  |
|                 | Bross and Kiltz (1973) "The Number and Nature of Commun., 50:559-565.  |  | •   |  |  |  |  |  |
|                 | Hillman, J.D. et al. (1988) "Genetic and Biochemic<br>Infection and Immunity, 66(6):2743-2749  | ical Analysis of Mutacin 1140, a Lantibiotic from Streptococcus mutans", |   |  |  |  |  |  |
|                 | Horinouchi and Weisblum (1982) "Nucleotide Seq<br>Chloramphenicol Resistance", J. Bacteriol., 150:81   | wence and Functional Map of pC194, a Plasmid that Specifies Inducible    |   |  |  |  |  |  |
|                 | Honr et al. (1991) "Nisin biosynthesis genes are en  | coded by a novel conjugative tranpos                                     |   |  |  |  |  |  |
|                 | Jakes et al. (1988) "A Hybrid Toxin from Bacterio<br>Specificity", J. Bacteriol, 170(9):4231-4238  |  |   |  |  |  |  |  |
|                 | Kaletta and Entian (1989) "Nisin, a peptide antibio<br>processing of its peptide product", Journal of Bact   | otic: cloning and sequencing of the ni<br>teriology, 171(3):1597-1601    | isA gene and prosttranslational           |  |  |  |  |  |
|                 | Kyte and Doolittle (1982) "A Simple Method for D<br>157(1):105-132   | isplaying the Hydropathic Character                                      | of a Protein", J. Mol. Biol.              |  |  |  |  |  |
|                 | LeBlanc et al. (1988) "Nucleotide Sequence Analysis of Tetracycline Resistance Gene tetO from Streptococcus mutans DL5", J. Bacteriol., 170(*):3618-3626   |  |   |  |  |  |  |  |
|                 | Liu and Hansen (1992) "Enhancement of the chem<br>mutagenesis", J. Biol. Chemistry, 267(35):25078-2:   | ical and antimicrobial properties of :<br>5085                           | subtilin by site-directed                 |  |  |  |  |  |
| $\downarrow$    | Liu and Hansen (1991) "conversion of Bacillus subtilis 168 to a Subtilin Producer by Competence Transformation", Bacteriol., 173(22):7387-7390   |  |   |  |  |  |  |  |
| EXAMINER        |  | DATE CONSIDERED  | 08/01/2006                                |  |  |  |  |  |
|                 | /Vanessa Ford/   |  |   |  |  |  |  |  |
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| • EXAMINER                         | OTHER DOCUMENTS (Including Author, Title   | e, Date, Pertinent Pages, Etc.)  |   |  |  |  |  |  |  |
| INITIAL<br>VF                      | Loyola-Rodriquez et al. (1992) "Purification and properties of extracellular mutacin, a bacteriocin from Streptococcus sobrinus", J. Gen. Microbiology, 138:269-274.   |  |   |  |  |  |  |  |  |
|                                    | Macrina et al. (1977), "Survey of the Extrachromo 17(1):215-226  | osomal Gene pool of Streptococcus M  | utans", Infect. Immun.,                   |  |  |  |  |  |  |
|                                    | Miller et al. (1991) "Quantition of Type I, II, and Chromatography of Selected Cyanogen Bromide P  | antition of Type I, II, and V Collagens in Human Tissue Samples by High-Performance Liquid<br>cted Cyanogen Bromide Peptides , Anal. Biochem. 196:54-60.                             |   |  |  |  |  |  |  |
| v                                  | Miller et al. (1990) "Amino Acid Analysis of Colla<br>Chromatography of i-Fluorenyllmethyl Chloroforn  | Collagen Hydrolysates by Reverse-Phase High-Performance Liquid roformate Derivates", Anal. Biochem., 190:92-97.  |   |  |  |  |  |  |  |
|                                    | rases: Hybrid-Enzyme Analysis", J.   |  |   |  |  |  |  |  |  |
|                                    | Novak et al. (1996) "Detection of Modified Amino<br>Electrospray Ionization Mass Spectroscopic Ana   | 996) "Detection of Modified Amino Acids in Lantibiotic Peptide Mutacin II by Chemical Derivatization and onization Mass Spectroscopic Analysis", Analytic Biochemistry, 236:358-360. |   |  |  |  |  |  |  |
|                                    | Novak et al. (1994) "iIsolation and biochemical cha<br>J. Bacteriol., 176(14):4316-4320.   | aracterization of a novel fantibiotic mutacin from Streptococcus mutans",  |   |  |  |  |  |  |  |
|                                    | Novak et al. (1994) "Genetic and biochemical char<br>Internationl Congress of Bacteriology and Applied   | m Streptococcus mutans", 7th   |   |  |  |  |  |  |  |
|                                    | Atlantic, Georgia, May 1993.   | oup II mutacin from Stsreptococcus mutans", 93rd General Meeting,  |   |  |  |  |  |  |  |
|                                    | Novak et al. (1994) "Characterization of a novel lantibiotic from Streptococcus mutans", IVth International ASM Conference on Streptococcal Genetics, Santa Fe, New Mexico, May 15-18, 1994.   |  |   |  |  |  |  |  |  |
|                                    | Ochman et al. (1993) "Use of Polymerase Chanin Recation to Amplify Segments Outside Boundaries of Known Sequences", Method. Enzymol. 218:309-321.  |  |   |  |  |  |  |  |  |
|                                    | Parrot et al. (1990) "Preliminary characterization 36:123-130.   |  |   |  |  |  |  |  |  |
|                                    | Schnell et al. (1992) "Analysis of genes involved in the biosynthesis of lantibiotic epidermin", Eur. J. Biochem., 204:57-68.  |  |   |  |  |  |  |  |  |
|                                    | Sevag et al. (1938) "The isolation of the components of Streptococcal necleoproteins in serologically active form", Chem., 124:425-436.  |  |   |  |  |  |  |  |  |
|                                    | Tagg et al. (1976) "Bacteriocins of Gram-Positive l  | Bacteria", Bacteriol. Rev., 40(3):722-   | 750                                       |  |  |  |  |  |  |
|                                    | Tagg et al. (1990) "A longitudinal study of Lancefield group A streptococcus acquistions by a group of young Dunedin schoolchildren", N.Z. Med. J., 103:429-31.  |  |   |  |  |  |  |  |  |
|                                    | Treiu-Cuot et al. (1990) "Nucleotide sequence of th<br>Nuc. Acids Res., 18(12):3660.   | e erythromycin resistance gene of the  | e conjugative transposon Tn1545",         |  |  |  |  |  |  |
|                                    | Tudor et al. (1990) "Size of the Streptococcus muta<br>Electrophoresis", Infect. Immun. 58(3):838-840.   | ns GS-5 Chromosome as Determined   | by Pulsed-Field Gel                       |  |  |  |  |  |  |
|                                    | Van der Meer et al. (1993) "Characterization of the Lactococcus lactis Nisin A Operon Genes nisP, Encoding a Subtilisin-Like Serine Protease Involved in Precursor Processing, and nisR, Encodinga Regulatory Protein Involved in Nisin Biosynthesis", J. Bacteriol., 175(9):2578-2588 |  |   |  |  |  |  |  |  |
|                                    | Van der Rijn and Kessler (1980) "Grouth Characteristics of Group A Streptococci in a New Chemically Defined M  |  |   |  |  |  |  |  |  |
|                                    | Infect. Immunol., 27(2):444-448.  Woodruff et al. (1998) "Sequence Analysis of a mutA and mutM genes involved in the biosynthesis of the lantibiotic mutacin II in Streptococcus mutans", Gene 206:37-43.  |  |   |  |  |  |  |  |  |
| V                                  | mutatin II in Streptotocus mutans , Cine 2000,   |  |   |  |  |  |  |  |  |
| EXAMINER                           | /Vanessa Ford/   | DATE CONSIDERED  | 08/01/2006                                |  |  |  |  |  |  |
| *EXAMINER: In<br>considered. Inclu | itial if citation considered, whether or not citation is in conformance ide copy of this form with next communication to applicant.  | e with MPEP Section 609; Draw line through   | ch citation if not in conformance and not |  |  |  |  |  |  |